

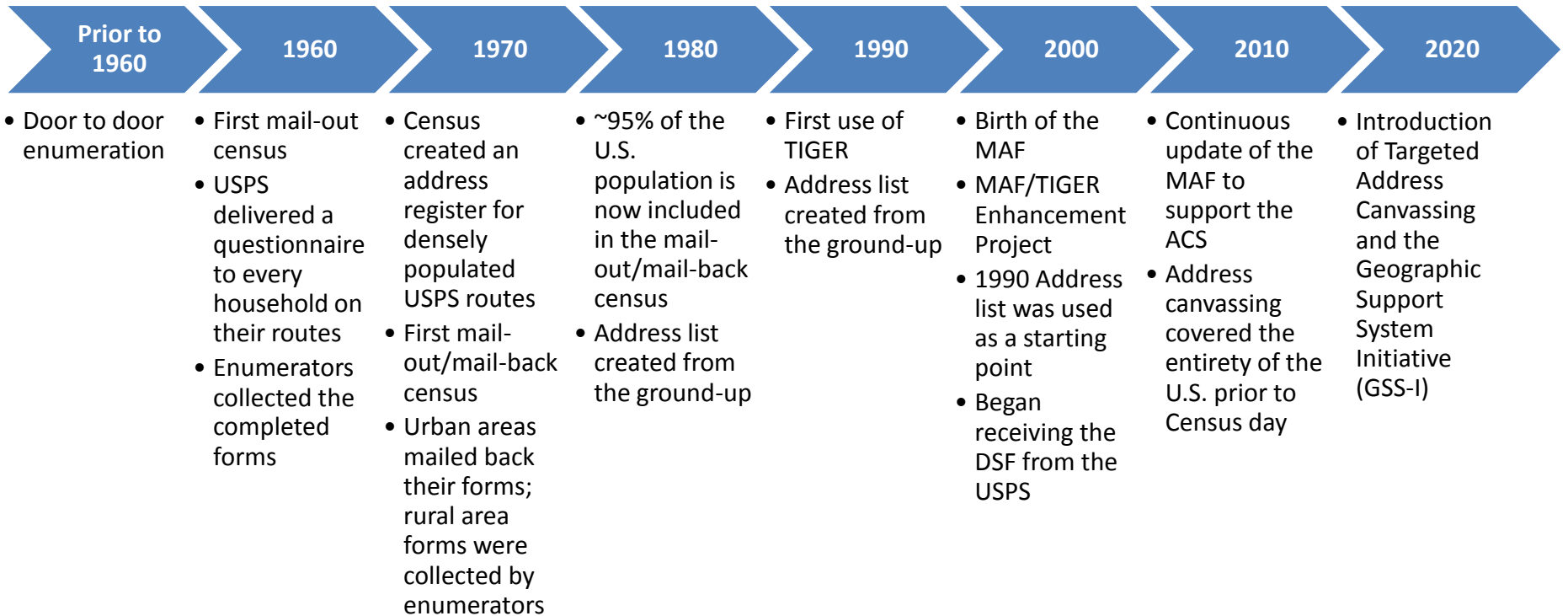
# The Geographic Support System Initiative (GSS I)

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April 17, 2013

# U.S. Census Bureau Mission



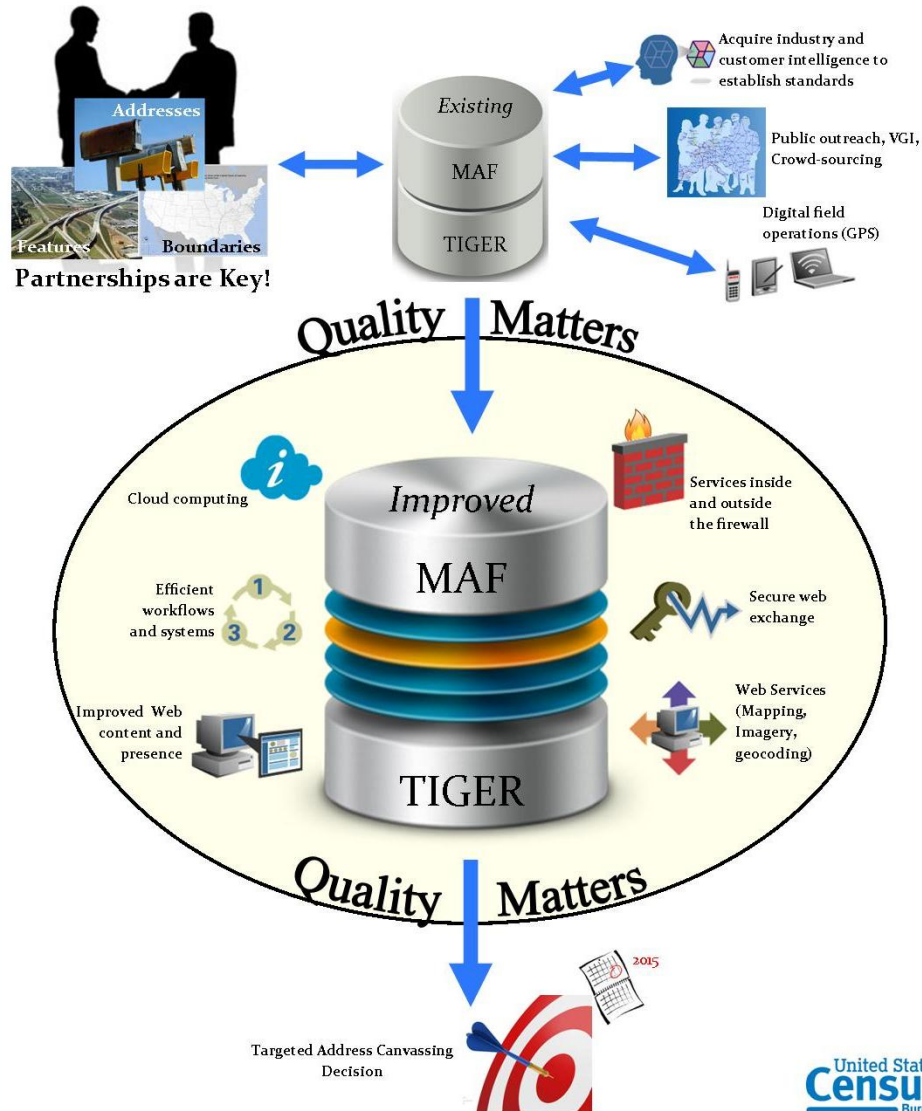
# A Change in Methodology



# What is the GSS-I?

- An integrated program of:
  - Improved address coverage
  - Continual spatial feature updates
  - Enhanced quality assessment and measurement
  - Improved partnerships
- Supports a targeted, rather than complete, Address Canvassing operation in 2019

# Geographic Support System Initiative U.S. Census Bureau



# Expert Research at Census

- Seven reports created by outside experts:
  - The State and Anticipated Future of Addresses and Addressing
  - Identifying the Current State and Anticipated Future Direction of Potentially Useful Developing Technologies
  - Measuring Data Quality
  - Use of Handheld Computers and the Display/Capture of Geospatial Data
  - Researching Address and Spatial Data Digital Exchange
  - Change Detection
  - Master Address File (MAF) Evaluation
  - <http://www.census.gov/geo/www/gss/reports.html>
- Summer at Census:
  - Steve Guptill; USGS Chief Scientist (Retired)
    - *Quantifying the Quality of the MAF/TIGER Database*
  - David Cowen; Distinguished Professor Emeritus
    - *Use of Parcel Data to Update and Enhance Census Bureau Geospatial Data*
  - <http://www.census.gov/geo/www/gss/qaewg.html>

# Address Improvement Goals

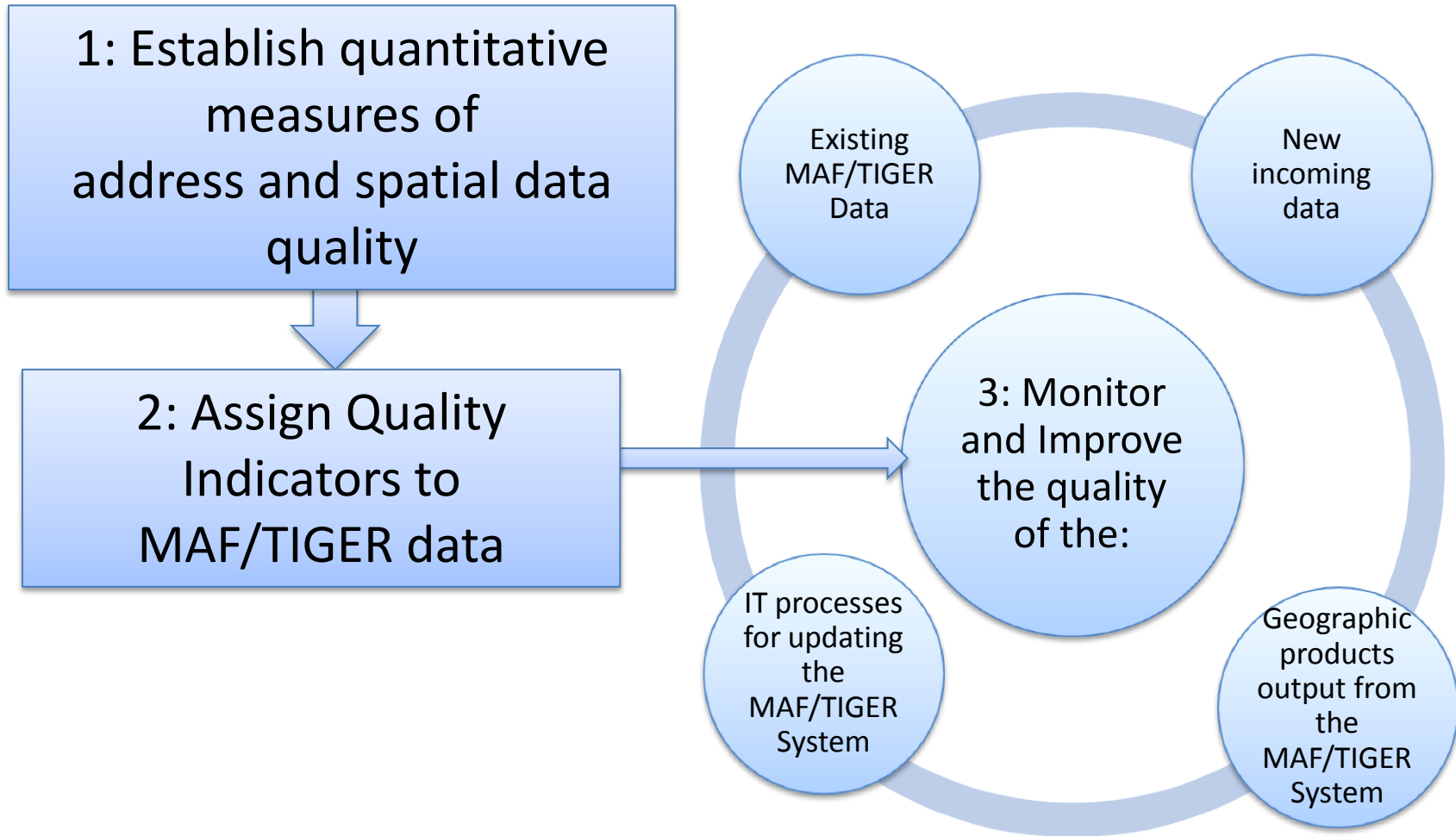
- Current and complete address coverage
  - Partnership programs
  - Commercial address list sources
- Expanded address sources for MAF update, especially in areas without city-style addresses
- Development of guidelines for submission of address, feature, and boundary data
- American Community Survey (ACS) and current surveys need current and complete coverage

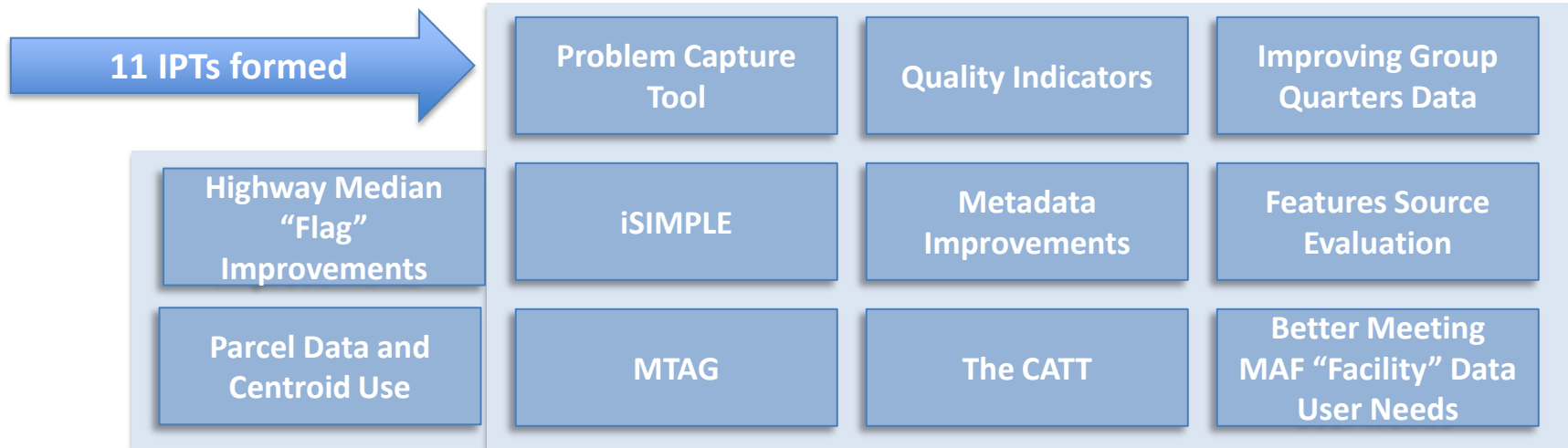
# Feature Improvement Goals

- Ongoing street network and attribute updates
- Address point data collection
- Best available data from partners and commercial files
- Imagery for change detection and source evaluation



# Improving Data Quality





# 2011 Address Summit Outcomes

## 5 Address Pilots

- Address Authority Outreach and Support for Data Sharing Efforts
- FGDC Address Standards and Implementation
- Federal/State/Tribal/Local Address Management Coordination
- Data Sharing – Local/State/USPS/Census
- Hidden/Hard to Capture Addresses

# Address Indicators

- Overall Address QIs
  - Address consistency
  - Mailability
  - Deliverability
  - Locatability
  - Geocode accuracy

# Feature Indicators

- Overall Feature QIs
  - Spatial accuracy
  - Feature naming
  - Address ranges
  - Feature classification

# Geographic Area Indicators

- For each Geographic Area, four major tests or sub-indicators
  - Local review/approval of areas
  - Regional review/approval of areas
  - Program review/approval of areas
  - Independent subject matter review/approval of areas
- Additional tests for statistical criteria, attributes, type of submission, contiguity, etc...
- Also tests for geographic interaction (slivers), and block size and shape

# Geocode Indicators

- Combines specific sub-indicators from each other category
  - Locatability and geocode accuracy (Address)
  - Spatial accuracy & address ranges (Feature)
  - Block size & shape (Geography)

# Overall indicators & weighting

- Addresses, Features, Geographic Areas, and Geocodes QIs are then aggregated according to subject matter formulas
- Each census tract will receive a single overall score, and category scores where relevant
- History and tendency will be tracked



# External sources

- Quality Indicators are MTDB only
- In the future, external sources may also help determine MTDB quality, such as:
  - Population estimates
  - Building permits (new development)
  - Comparison to Imagery
- Additional tests to check for completeness of MTDB (omission/commission)

# Tract profiles

- Additional ability to adjust Quality Indicators based upon profile elements of the tract, such as:
  - Natural disaster
  - Unique address types
  - Rapidly changing development
  - Special land use areas

# Targeted Address Canvassing

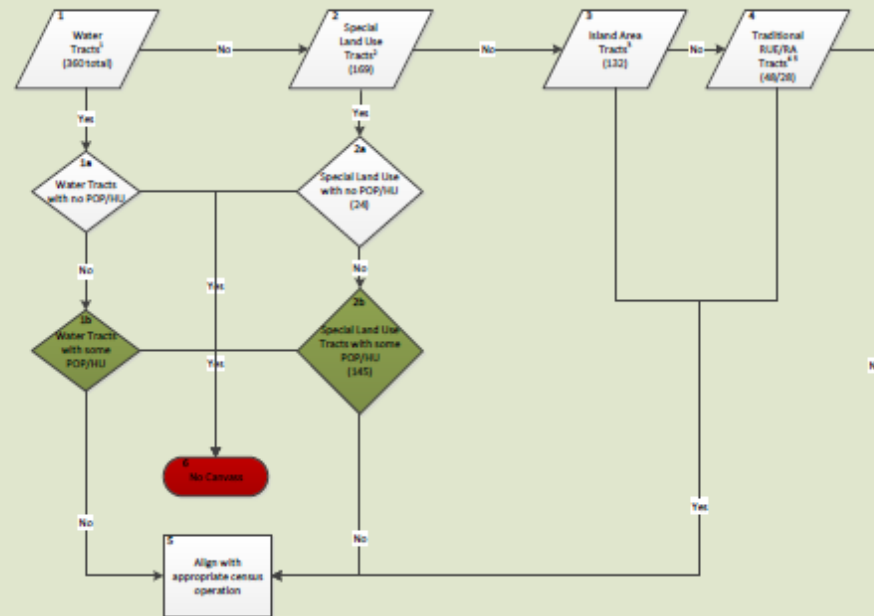
- Is a traditional, on-the-ground canvassing operation necessary to ensure a complete and accurate address list for the decennial census?
  - Determine the areas of the country in which the address list and locational information can be kept current without canvassing
  - Identify characteristics for areas that should be targeted for traditional canvassing

# Targeted Address Canvassing Decision Tree

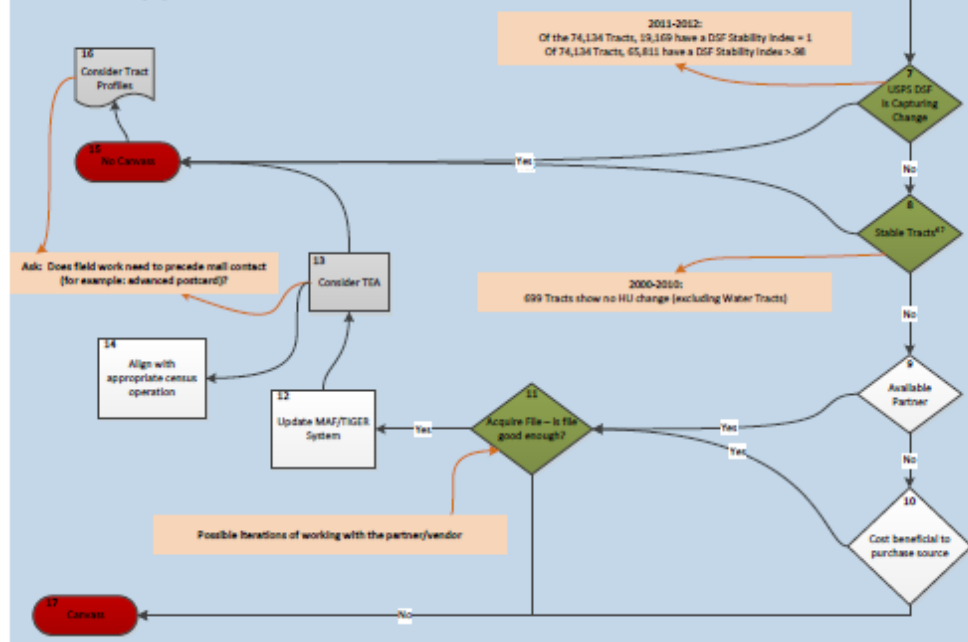
## Targeted Address Canvassing Decision Tree

03/19/2013

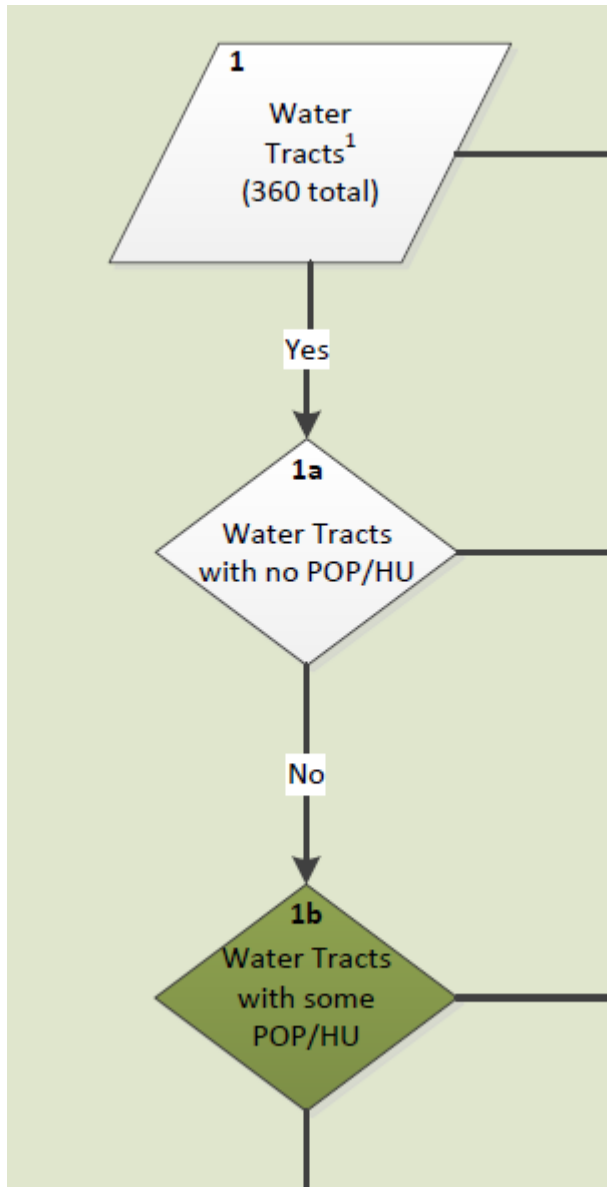
### Preliminary Decision on Types of Geography



### Research: CATT/QI TAC Continuum

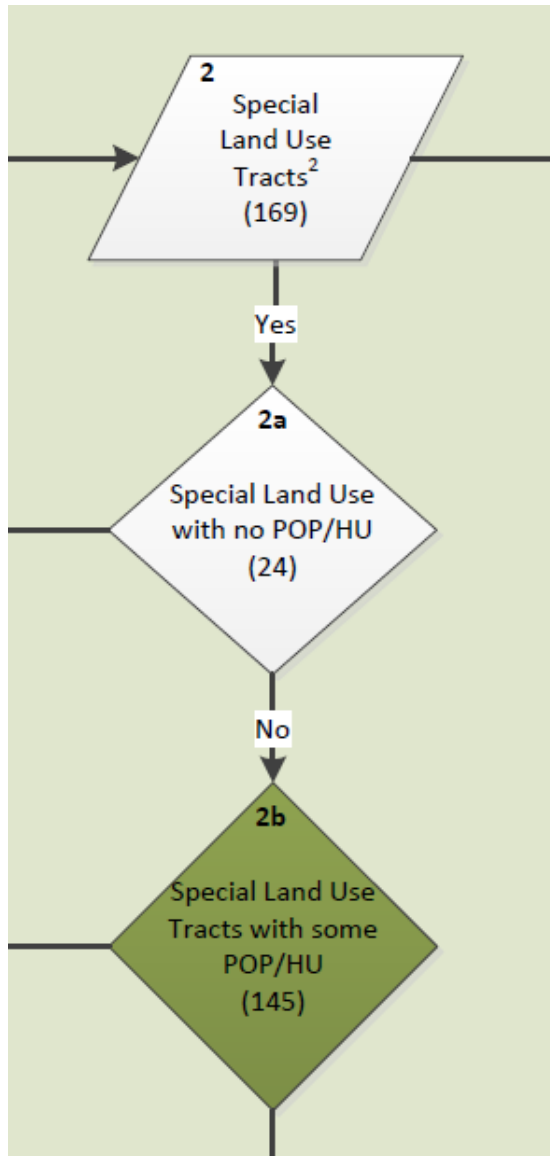


# Water Tracts

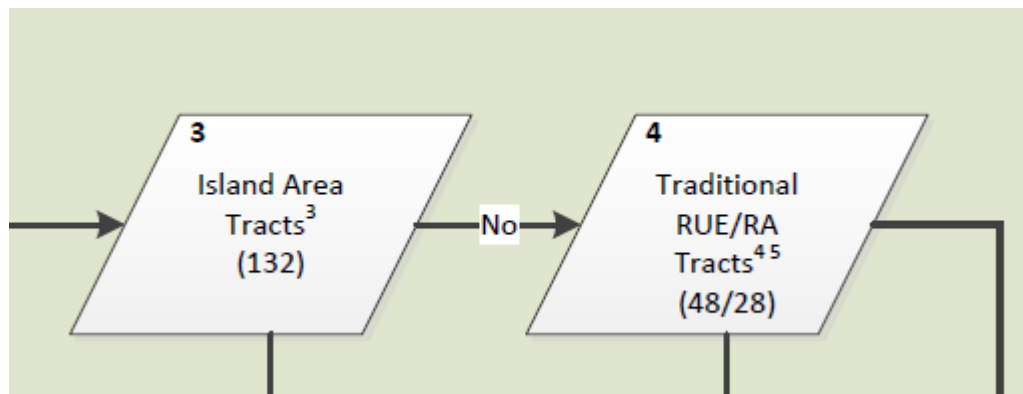


- Tracts that are 100% covered by water and have no population or housing units will not be canvassed.
- Tracts that are 100% covered by water and have some number of population and/or housing units may be canvassed.

# Special Land Use Tracts



- Tracts that are classified exclusively as a special land use and have no population or housing units will not be canvassed.
- Tracts that are classified exclusively as a special land use and have some number of population and/or housing units may be canvassed.

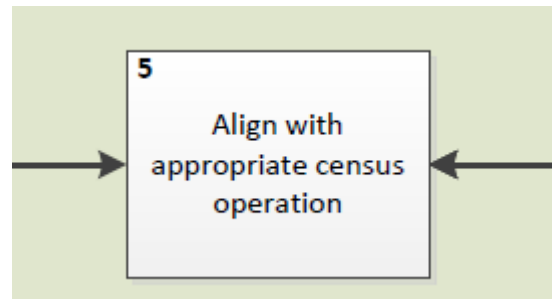


## Island Area Tracts

- Island area tracts will not be canvassed

## Traditional RUE/RA Tracts

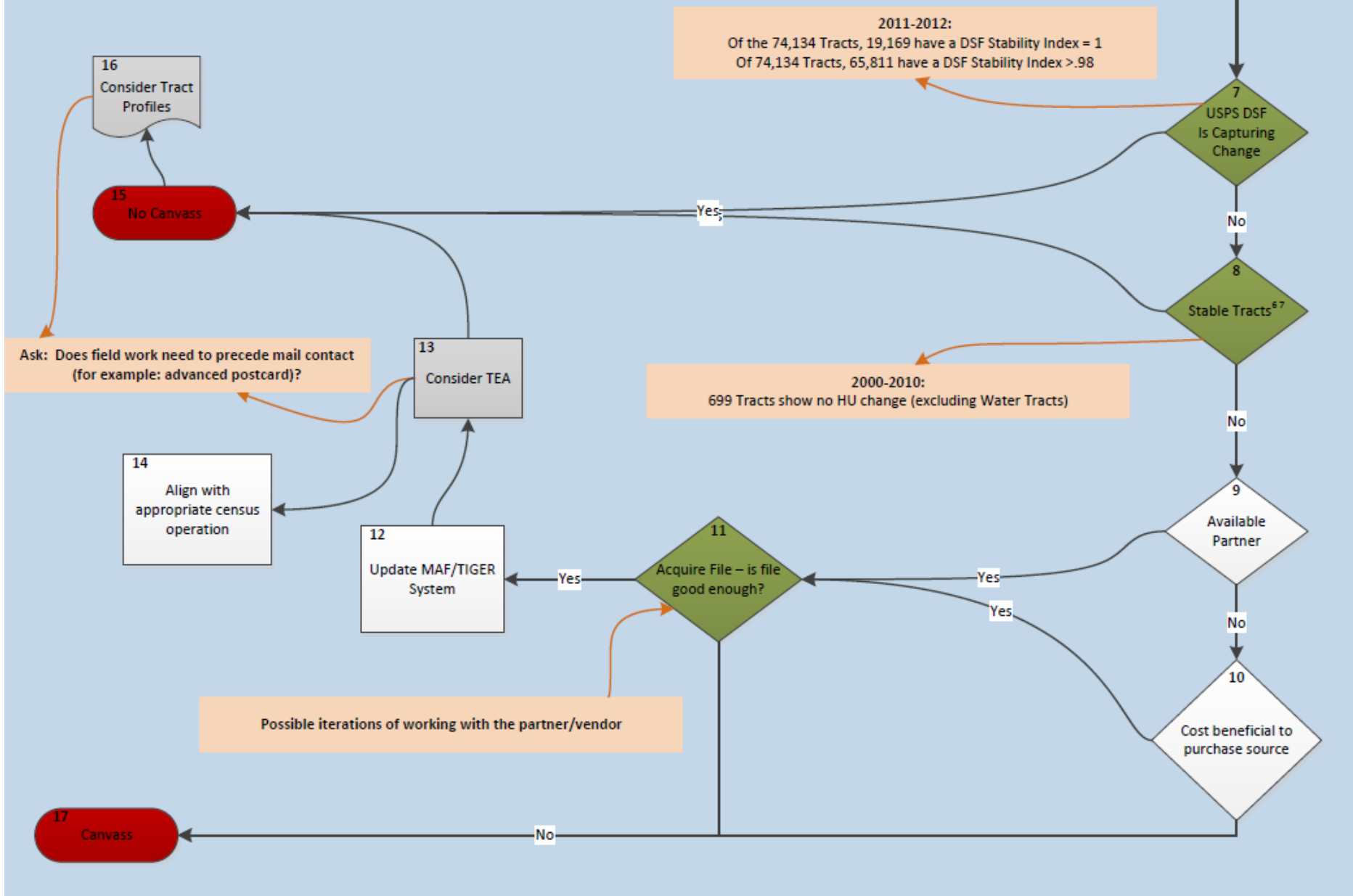
- Traditional Rural Update Enumerate tracts will not be canvassed
- Traditional Remote Alaska tracts will not be canvassed



All of the tracts where canvassing will not occur will be aligned with the appropriate 2020 Census operation



# Research: CATT/QI TAC Continuum



# The Result

- All census tracts will be tested and ranked
- Work and updates can then be targeted to specific areas most in need of update
  - Prioritization of internal work
  - Prioritization of partner contact and file ingestion
  - Improved resource allocation
- Improved Products
  - Shapefiles
  - TIGERweb
  - Improved address frame for censuses and surveys such as ACS
- Targeted Address Canvassing decision

# Partnerships are Key!

The GSS-I is dependent on the authoritative data provided by local, state, and tribal governments



# Questions?